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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/696,043	10/29/2003	Tsunenori Yamamoto	83394.0017	5924

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EXAMINER

NGUYEN, JENNIFER T

ART UNIT	PAPER NUMBER
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2629

DATE MAILED: 08/23/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/696,043	Applicant(s) YAMAMOTO ET AL.	
	Examiner Jennifer T. Nguyen	Art Unit 2629	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 October 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-32 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-5, 13-15, 17, 18, 21-26 and 30-32 is/are rejected.
- 7) ☒ Claim(s) 6-12, 16, 19-20, 27-29 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>10/29/03; 3/9/04</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1, 2, 4, 5-13, 15, 17, 18, 21-23, 25, and 26 are rejected under 35 U.S.C. 102(e) as being anticipated by Umemoto et al. (Patent No. US 7,030,945).

Regarding claim 1, Umemoto teaches an illumination device (fig. 1 and 2) having a light pipe of a substantially parallel flat-form sheet (10), of which one surface is an outgoing light surface, and a light source unit (51) is placed along one side edge and opposite both side edges, the device comprising:

a light axis (fig. 1) of lights unparallel to said outgoing light surface of said light pipe after the lights having entered said light pipe from said light source;

a reflection body unit (4, 6, fig. 2) consisting of plural unit reflection bodies (A) divided into m in a vertical direction of said light source unit at an opposite side surface of said outgoing light surface of said light pipe; and

a reflection surface (A1, A2) existing inside said unit reflection bodies (A), and reflecting lights which have entered within the reflection body from inside of the light pipe in contacting said light pipe in the outgoing light surface direction of the light pipe,

wherein said reflection body unit (4, 6) can contact and separate from the opposite side surface of said outgoing light surface of said light pipe for every said unit reflection bodies, and

wherein each unit reflection body composing said unit reflection body is composed of material substantially equal in a refractive index to said light pipe (col. 4, lines 42-67, col. 5, lines 36-63).

Regarding claim 2, Umemoto teaches a light arm of lights entering said light pipe from said light source unit is unparallel to said outgoing light surface of said light pipe (col. 13, lines 9-35).

Regarding claim 4, Umemoto teaches an end opposite to said light source unit of the light pipe slants for said outgoing light surface (col. 13, lines 24-57).

Regarding claim 5, Umemoto teaches a light axis of lights entering said light pipe from said light source unit is unparallel to said outgoing light surface of said light pipe and an end of said light source unit side slants for said outgoing light surface (col. 13, lines 24-57).

Regarding claim 13, Umemoto teaches said light a urea unit makes a direction of outgoing lights changeable for said light source unit in a vertical plan (col. 13, lines 24-57).

Regarding claims 15, 26, Umemoto teaches a change of a light is of lights entering said light pipe by said light source unit is synchronized with a cycle of contact and separation (col. 13, lines 24-57).

Regarding claims 17, 22, 23, Umemoto teaches reflection surfaces inside a unit reflection body composing said reflection body unit are parallel to said light source unit and a mountain-shape, and wherein a scattering profile of the mountain-shape is uniform in all unit reflection bodies (col. 14, lines 20-29, fig. 6A).

Regarding claim 18, 25, Umemoto teaches reflection surfaces inside a unit reflection body composing said reflection body unit are parallel to said light source unit and a mountain-shape, and wherein a scattering profile of the mountain-shape is different between near and far ends of said light source unit and a middle of the light pipe (col. 14, lines 20-59).

Regarding claim 21, Umemoto teaches an illumination device (figs. 1 and 2) having a light pipe of substantially parallel flat sheet-form (10), of which no surface is an outgoing light surface, and a light source units (5 and 52) placed along one side edge and opposite two side edges of said light pipe, the device comprising:

a reflection body unit (4, 6) consisting of plural unit reflection bodies (A) divided into m in a vertical direction for said light source unit at an opposite side surface of said outgoing light surface of said light pipe;

wherein said unit reflection body unit (4, 6) can contact and separate from the opposite side surface for said every unit reflection bodies;

wherein a refractive index of each unit reflection body is equal to the refractive index of said pipe and each unit reflection body is composed of substantially equal material in the refractive index to said pipe;

wherein said unit reflection bodies divided into m, of which j pieces ($j \leq m$) concurrently contact said light pipe, inside thereof have reflection surfaces composed so as to reflect lights, which have entered within each unit reflection body from inside of the light pipe in contacting said light pipe, in an outgoing light direction of the light pipe; and

wherein moat of lights having entered said light pipe from said light sources unit totally reflect once at an inner surface of said light pipe until a position equivalent to said j pieces of unit reflection bodies (col. 4, lines 42-67, col. 5, line 36 to col. 6, line 63).

Regarding claim 30, Umemoto teaches a display device (i.e., active matrix LCD) of said illumination device the device comprising:

a plurality of scan lines (not shown) formed at least one of a pair of boards pinching a liquid crystal layer and extending in a first direction and parallel provided in a second direction intersecting the first direction, a plurality of signal lines extending said second direction and parallel provided in said first direction, and a display panel (1) equipped with pixels at said intersection portions of said scan lines and said signal lines;

a scan line driving circuit (not shown) selecting said scan lines in predetermined turn, and a signal line driving circuit applying image signals supplied from a display source to said signal lines selected by said scan circuit;

an illumination device (fig. 2) stacked at one side of said one pair of boards of said liquid crystal display panel, and giving illumination lights to the display panel; and

a control circuit (not shown) receiving image signals from said display source and controlling said scan line driving circuit, said signal line driving circuit, and said illumination device (abstract, col. 4, lines 7-30, col. 5, lines 12-20).

Regarding claims 31 and 32, Umemoto teaches control circuit operates by changing a mode, which synchronizes a cycle of contact with and separation from said light pipe of unit reflection bodies composing a reflection body unit of said illumination device by image signals

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from said display source with said scan cycle, to and from a high frequency mode (col. 4, lines 42-67, col. 5, lines 36-63, col. 9, lines 28-50).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 3 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Umemoto et al. (Patent No. US 7,030,945) in view of Choi et al. (Patent No. US 2004/0240232).

Regarding claim 3 and 14, Umemoto differs from claims 3 and 14 in that he does not specifically teach an optical element disposed between said light unit and said light pipe makes axis direction to said light pipe changeable for said light source unit in a vertical plane.

Choi teaches an optical element (150) disposed between said light unit and said light pipe makes axis direction to said light pipe changeable for said light source unit in a vertical plane [0116]. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the optical element as taught by Choi in the system of Umemoto in order to correct the horizontal path of light from the light source.

5. Claim 24 is rejected under 35 U.S.C. 103(a) as being unpatentable over Umemoto et al. (Patent No. US 7,030,945) in view of Ohnishi et al. (Patent No. US 2005/0030630).

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Regarding claim 24, Umemoto differs from claim 24 in that he does not specifically teach said light pipe side surface of said unit reflection bodies consists of material which can be easily deformed.

Ohnishi teaches light pipe side surface of said unit reflection bodies consists of material which can be easily deformed [0017]. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the unit reflection bodies consists of material which can be easily deformed as taught by Ohnishi in the system of Umemoto in order to prevent the light guiding plate from being damaged.

6. Claims 6-12, 16, 19-20, and 27-29 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

7. The prior art made of record and not relied upon is considered to pertinent applicant's disclosure: US 5,485,354 and US 5,808,713.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jennifer T. Nguyen whose telephone number is 571-272-7696. The examiner can normally be reached on Mon-Fri: 9:00am-5:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard Hjerpe can be reached on 571-272-7691. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Jennifer Nguyen
8/19/06



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